10 STEPS

TO LEARN ANYTHING QUICKLY

Simple Programmer

Making the complex simple

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Introduction: What This Workbook Is About

This workbook is a supplemental resource to the 10 Steps To Learn Anything Quickly video course.

It contains a detailed description of each of the steps mentioned in the video course as well as some additional materials like worksheet and checklists to help you get the most out of the course.

Why I created this course

I get many emails from software developers, often asking me how to learn about a particular technology or programming language. Most of these emails are looking for a specific book I recommend, or a series of books, which will magically bestow upon them the information they want to know.

True learning isn't as easy as reading a single book. But, for many software developers, and people in general, it is the only way they know how to learn: either to have someone teach them directly in a classroom setting, or to read information out of a book.

I kept responding to these emails with similar advice: you don't need a book. Decide on a project, build that project, and learn what you need to know along the way. That is the best way to learn.

Some of them followed the advice and had amazing results; others shrugged me off as a crackpot and went on their way.

What I began to realize, though, was that the core problem is that these software developers, although they had many skills, didn't have the one key skill required to be successful in life: the ability to teach themselves—they need to learn how to learn.

This course is an attempt to do more than show you a quick hack for learning something quickly through 10 steps. Instead, think of it as a methodology you can apply to help you learn how to teach yourself.

Once you master this critical skill, a whole world of possibility opens up before you.

How To Use This Workbook

You'll get the most out of this workbook if you watch the video series first. I give all the steps and tell you how to do each step in the workbook. But, in the video series I actually go through the steps and show you a real, practical example.

HOW NOT TO USE THIS WORKBOOK

Sometimes it is easier to explain things by their opposites. So, I am going to start off by telling you how not to use this workbook.

This workbook is not designed to be some magical hack that will shortcut the process of hard work and persistence to show you how to download information into your brain like Neo from The Matrix. *(If you haven't seen the movie, he has a socket in his head that he plugs into a computer, and then he suddenly knows kung fu.)*

Instead, this workbook is designed to guide you in the process of learning how to learn, by giving you a clear direction and path to follow and by helping you to ask some critical questions along the way, which will show you that you have the ability within yourself to be your own teacher.

Don't feel like you need to fill out every worksheet and check every box in order to get the most out of this course—no golden stars will be given out for dotting every 'i' and crossing every 't.'

Instead, use what makes sense to you. Perhaps fill things out the first time through, or fill out the things that you think will be most useful to you. Even answering the questions in your own head will provide some value to you.

Part of the purpose of this course is to teach you to break away from the closed mindset that you must read books cover-to-cover, or take a specific set of courses, or enroll in a specific program at a college or university in order to learn something.

How to use this workbook

With that said, the best way to use this workbook is to take the ideas present here and the steps I have outlined, and modify them to your own inclinations and learning style.

In this workbook, I give you good reasons why I feel that each step is important and tell you specifically why we are doing each step and what the outcome should be, but what is most important is the general idea behind these steps.

You are your own best teacher.

Step 1: Get the Big Picture

Our first step is to get the big picture.

Whatever topic you want to learn about, you have to understand enough about that topic to be able to know what there is to learn about it.

Many people make the mistake of diving right into learning something by picking up the first book they encounter on the subject, and they don't take the time to understand enough about the subject they want to learn about before diving in.

This step is critical, because it can help prevent you from learning the wrong thing or getting in way over your head.

The goal of this step

Get the big picture of the topic you want to learn about. Want to learn about photography? Great. But first, you must understand all the areas of photography that exist, so that you can narrow your focus to what you are actually interested in learning. Chances are, you don't want to know about photography in general, but you do want to know about how to do a specific kind of photography; you just don't know enough about the broader subject to know what specializations and areas of learning exist.

Putting it into action

For this step, you simply want to do some basic research on your topic. You can probably accomplish this step through internet searches alone, but if you have a book on your topic already or know someone knowledgeable in the area you want to learn about, feel free to use those resources as well.

Caution: Don't spend too much time on this step. Your goal at this point isn't to learn the actual topic itself, but just to get the big picture. You should spend a majority of your time on this step skimming resources and perhaps reading a few articles of interest. We'll spend more time learning our topic in-depth later.

On the next page, you'll find a worksheet where you can fill out the high-level topic that you want to learn about, as well as answer some questions about that topic to make sure you understand enough about it to be able to move forward.

Go ahead and fill out that worksheet before you move onto step number 2.

FILL THIS OUT

"In order to properly understand the big picture, everyone should fear becoming mentally clouded and obsessed with one small section of truth."

Xun Zi

What is the high level-topic that you want to learn about?

_____

Briefly provide a summary of what your topic is about (the big picture).

_____

_____

_____

Break your high level topic up into smaller subtopics or focus areas.

Hint: Some topics will have many subtopics, but others will already be specialized areas of focus. The idea here is just to try and get a picture of how big the thing you want to learn is, so that you can determine the proper scope in the next step.

- ◼ _____
- ◼ _____
- ◼ _____
- ◼ _____
- ◼ _____
- ◼ _____
- ◼ _____

CHECKLIST

BEFORE YOU MOVE ON CHECKLIST:

- ❑ Do you feel like you know enough about your topic that you have a good idea of what you don't know and what you need to learn?

- ❑ Do you feel like you have an idea of how "big" your topic is?

- ❑ If your topic is big, do you feel like you have an idea of what subtopics or areas you could focus on in order to learn the parts of the bigger topic that are most important to you?

- ❑ Do you know why you want to learn about this topic? Does it still interest you? (Sometimes, you may find that you don't really want to learn about the topic once you've dug in enough to understand the basics of what it is about. Don't worry if this happens; you've just saved yourself some time that you would have wasted learning about something you aren't interested in.)

Step 2: Determine the Scope

Our second step is to determine the scope of what we want to learn about.

One of the biggest problems with trying to learn something new is that what you have to learn can often be overwhelming. I myself have struggled with trying to learn a large topic and finding that I quickly drowned myself in too much information and too much pressure.

As humans, we tend to do much better when we take the time to break things into smaller parts and accomplish the smaller parts one at a time. This is the strategy we will be employing in the rest of this course.

In order to learn something quickly, we have to make sure that the scope we select for what we are going to learn about is the proper size. We can't learn everything about physics in any reasonable amount of time. Neither can we learn a whole programming language and how to create applications with it. But, we can learn a smaller subset of either of these topics. We just have to figure out what that subset will be.

The goal of this step

Take the large topic we originally set out to learn about and narrow the scope to a more reasonable size; use what we learned about the "big picture" of our topic to come up with a more specific area of focus to learn about.

By the end of this step, you should have a much more focused topic to learn about. It should be appropriately scoped to the amount of time you want to devote to learning about your topic. You may need some time to get used to how big or small the scope of your topic needs to be in order to be able to learn most efficiently.

A proper scope size is going to be a compromise between being small and providing you the most practical value.

Examples

Here are some examples of what I consider to be good sized scopes:

> **Original topic:** *Learn C#*
> **Properly scoped topic:** Learn the basics of the C# language needed to create an application

> **Original topic:** *Learn Photography*
> **Properly scoped topic:** Learn digital photography for shooting portrait pictures

> **Original topic:** *Learn Linux*
> **Properly scoped topic:** Learn how to setup and install Ubuntu Linux and its basic features

Putting it into action

To complete this step, go through the information you have gathered in the first step and use it to try and break down the bigger topic into smaller topics, if you haven't done this already.

Decide which one of the smaller topics is most applicable to what you want to learn about.

Hint: If you want to learn about multiple smaller topics, pick the one that you will start with for now. You can always come back and apply the same process we are going to do for your first topic to another one, after you have learned the first.

Try to think about the smaller topic in terms of a reasonably sized scope that you can accomplish in a short time frame. *(The smaller the scope is, the more likely you'll be to accomplish your goal.)*

Try to make the subtopics as specific as possible, and include a context if possible. In the examples above for C# and photography, I used the context of creating an application and shooting portrait pictures.

Fill out the worksheet below to help you with this step.

Fill this out

"Because of their size, parents may be difficult to discipline properly."

P. J. O'Rourke

TIME FRAME

In what time frame do you expect to learn the topic you want to learn? (In weeks.)

_____

How many hours per week are you planning to devote to learning your topic?

_____

Multiply weeks _____ by hours _____ = _____ approximate hours to learn your topic.

This is pretty basic information, but use this information to help yourself determine a realistic scope.

SCOPED TOPIC

What subtopic do you want to learn about?

_____

What do you plan on doing with the knowledge you will get from learning about this topic?

_____

_____

Use the time frame, the subtopic, and what you will do with the knowledge to determine what will be your appropriately scoped topic and write it here:

_____

_____

_____

CHECKLIST

BEFORE YOU MOVE ON CHECKLIST:

- ❏ Are you sure you aren't biting off more than you can chew? Make sure the newly-scoped topic is small enough that you feel confident you can learn it in the amount of time you want to accomplish your goal.

- ❏ Do you have a clear picture of what you are going to learn about, even if you don't know how you are going to learn it yet?

- ❏ Try running your idea by someone else to see what they think about the size of your topic. _Someone who already knows about the topic will be able to give you a good idea of how appropriate your scope is._

Step 3: Define Success

Now that you have narrowed down your topic to a size that should fit the time frame you have outlined for reaching your goal, it is time to determine what that goal is.

Many people start trying to learn something without having a clear goal in mind. It is difficult to know which way to go when you don't know where you are going, and it is even more difficult to know whether you got there.

Instead of taking this haphazard approach to learning and just going in whatever direction the currents of knowledge will take us, we are going to take a more practical, more disciplined approach and set a clear goal that we can use to help define our path and prove that we have accomplished what we set out to do.

The goal of this step

At the end of this step, you should have a clear and concise statement, which will define success for your learning endeavor.

What you define as success can take many forms, depending on what it is you want to learn and your own personal inclination, but a good goal is measurable and unambiguous.

You don't want your success criteria to be something abstract, like this:

"I can take good pictures with my digital camera."

A success criteria like that is very hard to measure and is very open to interpretation.

Instead, you want to have a success criteria like this:

"I can go through all the features of my digital camera and describe what they are, as well as why and when I would use each feature."

The second success criteria is something you can clearly measure as being accomplished (or not), and it helps direct the path of your learning to a desired end result.

Putting it into action

Your mission is to come up with some success criteria that will be used to determine when you have achieved your goal of learning the topic you set out to learn.

Try to think of measurable, actionable things that will demonstrate proficiency or knowledge in the area you want to learn about.

The success criteria you define doesn't have to be like a final exam, quizzing you on what you should have learned, but it should be something you couldn't do before that you expect you should be able to do after you have learned your topic.

For example, if you are learning about a programming language, a great success criteria would be to create a small application using that programming language or technology.

Fill this out

"The great aim of education is not knowledge but action."

Herbert Spencer

What specific actions does the knowledge you are trying to acquire allow you to do? *(List as many of them as you can think of here.)*

_____

_____

_____

_____

_____

Of the actions you listed above, which one or ones would be most valuable for you to be able to do?

_____

_____

_____

Using this information, come up with a clearly defined success criteria that you will use to determine when you have reached your goal. *(Remember, good success criteria will be measureble and unambiguous.)*

_____

_____

_____

_____

Checklist

BEFORE YOU MOVE ON CHECKLIST:

- ❑ Is your success criteria measurable?
- ❑ Can you easily determine when it is met?
- ❑ Does it provide actual value to you?
- ❑ Will trying to accomplish this success criteria steer you in the right direction on your learning path?

Step 4: Find Resources

I'm often surprised how well the "For Dummies" series of books seems to sell.

Are people really buying these books thinking that all they need to know about a topic is contained within their pages?

Even many smart people I know believe that all they need to learn about a subject can be found in a single book on the topic. This is a common misconception, and it highlights our human weakness for wanting easy answers to our problems.

The truth is, if you really want to learn about a topic, the best way is to use a multitude of resources, not just one.

Remember when you used to have to write book reports in school? How many sources did the teachers ask for? What happened when you wrote a book report using only a single source? That's right—you got an "F."

While I don't agree with many of the methods of traditional education, I do agree that using a single source for your education is a horrible idea. In order to really learn a topic in-depth, you need to have multiple resources. Finding those resources is the point of this step.

The goal of this step

If it were 20 years ago, I'd probably be telling you to go to the library, but today you can find most of the resources you need for learning about any topic right from your home computer by using Google and Amazon.com.

For this step, we want to gather as many relevant resources as possible to aid us in our quest to learn.

These resources can take many forms, such as:

- Books (duh)
- Blog articles
- Online videos
- Experts or people already knowledgeable about the topic you want to learn about
- Podcasts
- Source code
- Example projects
- Online documentation

At the end of this step, we want to have a large number of resources that we can draw from, to figure out what path we are going to take to reach our learning goal and ultimately use to aid us on our mission.

PUTTING IT INTO ACTION

To accomplish this step, just start searching.

I usually like to start with Amazon.com and see if there are any good books on the subject I am trying to learn about. Oftentimes, you'll find that there are books that will cover parts of your topic, or that your topic will be covered in one or more chapters of certain books. That's not a problem at this step. We aren't filtering our resources yet—we are just making a note of all the good ones and trying to get a list of what might be useful.

Make sure you do a few web searches on your topic as well, and see if any useful articles or other resources like videos or podcasts come up.

If you are learning a technology or programming language, don't forget that open source software using that technology or programming language can also be a good resource.

And don't forget to phone a friend, either. If you know someone who already knows what you want to know, consider using them as a resource. Sometimes, the fastest way to learn something is to have someone else, who already knows it, condense it down for you and answer any questions you have.

And, as always, here is your worksheet… You are filling these things out, right?

FILL THIS OUT

"There's nothing more dangerous than a resourceful idiot."

Scott Adams

Start with books, since books usually contain the most well-researched and organized information. Look for the best 5 or so books you can find on your topic and list them here. *(Utilize customer reviews to determine what material is of the highest quality. Don't waste your time reading something that many other people think is not very valuable.)*

1. _____
2. _____
3. _____
4. _____
5. _____

Now make a list of all the other resources you can think of. *(For blog posts and internet articles, you are probably better off just creating a folder in your bookmarks list for whatever browser you use and saving them as bookmarks there.)*

_____

_____

_____

_____

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_____

_____

CHECKLIST

BEFORE YOU MOVE ON CHECKLIST:

- ❑ Did you filter out your resources? DON'T! Not at this step. Only ignore the worst quality ones at this step.

- ❑ Did you get creative and think outside the box? Are there any unconventional resources you can think of that might be of help to you?

- ❑ Do you have enough resources? *(For most topics, you should be able to find ample resources, but if you are trying to learn something like nuclear physics, you might actually have to visit a university library. Don't move on, unless you have enough resources to complete your goal; otherwise, you'll just be wasting your time.)*

Have you ever noticed how just about every book you read is broken up into chapters? Have you ever noticed that those chapters usually seem to follow some sort of progression? The same type of concept applies to subjects taught in school or any educational resource. In order to learn a topic, you need a clearly defined path to get from A to B, from unlearned to learned, from novice to expert.

I used to try to learn topics by just jumping in and reading about the subject or focusing on one particular area, with no sense of the order and progression involved in truly learning the topic.

When we use a scattershot approach to learning, we end up learning bits and pieces of things, but never really comprehending things with a holistic view.

In order to progress in our learning from one module to the next, we need to devise a learning plan that will guide us on our path.

THE GOAL OF THIS STEP

At the end of this step, we want to have a series of modules that we will learn about on the way to completing our education in a particular topic. We want to figure out a sensible progression that will allow us to build on the skills and information we are acquiring in each step of the learning process.

It often helps to think of the end result of this step as similar to creating an outline of a book. Pretend that you are going to write a book about whatever topic you are learning about, and determine what chapters the book will contain and in what order those chapters will be presented.

Putting it into action

The best way to complete this step is to take all those resources you gathered in the last step and skim over them to get a general idea of how the topic you want to learn about can be broken up into modules.

Tip: Obviously, at this point you wouldn't have purchased the books in your resource list, so you won't exactly be able to skim through them, but I usually use the "look inside" feature of Amazon.com to look at the table of contents of the books I have on my list.

Looking at the table of contents for books and skimming through articles and other learning materials for your subject is an excellent way to figure how to break apart your topic into the smaller modules that will make up your learning plan. You can bet that if 5 different authors have chosen to break content up in a similar way, then a similar structure is probably a good way to go for your learning plan.

Caution: Don't just take the chapters of a book and copy all of them in order as the modules of your learning plan. Many times, you will find that a book's coverage will be much broader than your limited scope, and all the chapters in a book may not coincide with what you need to know to achieve your success criteria. Use the books as a guide, but let your own brain and your resources as a whole determine what your learning plan should be.

Fill this out

Pick what looks like your 5 best resources and list the chapters from the table of contents or the sections or headers used to break up the material here:

Resource 1	Resource 2	Resource 3	Resource 4	Resource 5
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Take a look at what chapters or sections are repeated the most and write them down here:

_____

_____

_____

_____

_____

Add any additional modules or sections that you think need to be added to your learning plan, but might not exist as distinct chapters or sections in your resources.

_____

_____

_____

_____

From both of these lists, come up with the modules for your learning plan. Put them in the order that makes the most sense to you.

_____

_____

_____

_____

_____

CHECKLIST

BEFORE YOU MOVE ON CHECKLIST:

- ❑ Are the modules in your learning plan roughly the same size?

- ❑ Do you have too many modules? *(Too many modules may mean scope creep. Your scope may be expanding and you may need to cut it back down.)*

- ❑ Too few? *(If you have too few modules, it may mean that you need to break things down a bit smaller, or your overall scope may be too narrow.)*

- ❑ Does the order of your modules make sense? Will the progression of your learning path ultimately lead you to fulfill your success criteria?

At this point, you probably have quite a few different resources that you have gathered from step 4. You should have already gone through some of these resources as you skimmed them to create your learning plan in step 5.

However, it is unlikely that you will have the time—or that it will even be worth your effort—to go through all the resources you have gathered. Most likely, you will be able to find the information you are after in just a handful of the resources from your pool.

I'm also guessing you don't want to buy 5 different books from Amazon and try to read through all of them.

The goal of this step

Our aim for this step is to take the resources we have gathered, combined with the knowledge of what modules we need to cover from our learning plan, and filter down the resources to the best ones that will help us achieve our goals.

It can be very tempting to buy books on a topic and read them cover-to-cover, but this is not the best way to learn, and it would defeat the point of all the effort we have put in so far.

Instead, we want to pick the best of the best, be it books, blogs, videos, or other items, and use those resources to further our education.

Putting it into action

Now it is time to get serious. Pretend like you are a basketball coach making cuts for the varsity team. You'd like to let everyone play, but it just isn't feasible.

You don't have time to read 50 different books and every blog post on a subject. You've got to be picky and aim for the best resources that will help you achieve your learning plan.

Look carefully at your learning plan and decide which resources give you the best coverage of the modules in your plan. Also, get an overall feel for the quality of a resource by reading reviews or browsing samples from that resource. You should already have a basic feel for what resources are of the highest quality from your skimming of them in the last step.

Once you've figured it out, purchase your books, bookmark your sites, and make the cuts. This selection isn't sealed in stone, but the resources you select here should be the primary resources you will use for your learning adventure.

Points to ponder: think about how much more valuable the information you gathered to learn your topic will be, compared to just picking a single book or resource. You will be taking the best information from multiple sources to put your education together. You should never trust a single source as gospel—not even this guide.

"I've learned how to use my spam filter pretty effectively."

Weird Al Yankovic

What criteria do you think is the most important for judging the resources you will use for learning your topic? List the criteria you feel is most valuable to you here:

_____

_____

_____

_____

Make your master list of resources here. *(Try to keep it to a reasonable size, so that you don't feel overwhelmed. Remember that you don't have to go through each resource from beginning to end; you'll be picking what you need from each resource.)*

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

CHECKLIST

BEFORE YOU MOVE ON CHECKLIST:

- ❑ Did you utilize the criteria you outlined in the worksheet for filtering your resources?

- ❑ Do you feel like the resources you have selected will adequately cover the modules in your learning plan? *(If not, now is the time to go out and look for more resources before you move on.)*

- ❑ Did you overdo it? Do you have far more resources than you can actually utilize in the time you have set aside to achieve your learning goal? *(This is the most common problem, and it is very easy to think you need more resources than you really do. If this is the case, perhaps create a 1st picks list and a 2nd picks list, and see if you can get by utilizing only the 1st picks list.)*

Step 7: Learn Enough To Get Started

You'll be repeating steps 7 through 10 for each of the modules of your learning plan, as you progress through it, until the end.

I've often struggled with two wrong approaches to learning. The first is jumping in without knowing anything, and the second is preparing too much before jumping in. Neither of these approaches is optimal because we best learn by knowing enough about a topic to experiment with it and then forming questions about what we are doing, which we later find answers to. This is the pattern of the following steps: learn; do; learn; teach.

Before we can jump into a topic we are learning about and start to play around, we first need to know enough about that topic to have a general idea of what to do. For a technology topic, this may mean learning enough to set up a project and create a basic program. For something like photography, this might mean learning enough about a module on light to be able to experiment on our own with light sources and their properties.

THE GOAL OF THIS STEP

By the end of this step, you should have studied just enough about the module in your learning plan that you can take some sort of action based on that knowledge.

You don't want to actually learn the entire module at this point, but just enough to set the stage for playing around with the technologies or ideas involved in your learning. It is actually important not to learn too much, because in the next step you'll be letting the inquisitive nature of your mind guide you in the right direction by asking important questions; knowing the answers to the questions too early can stunt this process.

PUTTING IT INTO ACTION

The hardest part of this step is not going too far. It is pretty tempting to read through your resources and learn about the module you are supposed to learn about, but what you want to do instead is just lightly skim over the material for the module in your learning plan.

Just read through the high-level concepts, and if there are any "getting started" tutorials or bare basics that are outlined, take a look at those.

You are done when you feel like you know enough to get started, but don't know enough to know where to go from there.

Fill this out

"Start by doing what's necessary; then do what's possible; and suddenly you are doing the impossible."

Francis of Assisi

What is the general idea of this module in your learning plan?

_____

_____

_____

_____

What actions can you take to "play around" with what you are going to be learning for this module?

Hint: This can be tricky to decide. You may have to get creative. For something like a programming language or technology, the answer is usually straightforward. For something more abstract, your action might be something abstract as well, like a thought experiment or writing down a list of questions you have.

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_____

_____

Checklist

BEFORE YOU MOVE ON CHECKLIST:

❑ Do you have at least one actionable thing you can do next from the basics you have learned in this step?

That is really all you need to be able to move on for this step!

Now we get to the fun step. However, this step often scares many people, because it is completely unbounded. It is totally up to you to decide what to do during this step.

The idea behind this step is that, when we have a minimal amount of information about a subject and we play around in the space of that subject, our brains tend to develop the right types of questions, which will facilitate our learning when we answer them later.

Consider the alternative, which many of us have been taught to do, in which we try to learn about a subject just by reading about it, planning on taking action later. When we attempt to learn this way, we have no idea what parts of what we are reading are important. It makes much more sense to take some time to play around and develop our own questions, so that when we come back and actually read through information on our subject, we have a better sense of what is most important—the answers to the questions we had when playing around.

The goal of this step

The goal of this step is pretty simple: have fun, experiment, and develop some questions about what you are trying to learn.

You know you are done with this step when you can't make any further progress by yourself, when you feel like you want to crack open your resources to learn more about what you have been experimenting with on your own.

Putting it into action

How you do this step will greatly depend on the particular subject you are learning about, as well as your own inclinations of how to play around with that information.

It may mean creating a project and small application to test out some framework or technology, or it may mean writing down a list of questions you have about a subject, or even taking a trip outside to explore and make your own observations.

Whatever you choose to do, make sure you do something. Don't ignore this step. It is critical to making the subject you are learning about "stick" in your mind.

Fill this out

"You have to learn the rules of the game. And then you have to play better than anyone else."

Albert Einstein

What can you do to "play around" with the subject you are learning about? *(List a few different choices if you can.)*

_____

_____

_____

_____

Pick one of the things you can do and do it. Then list any questions you have as you are "playing around" here. *(If you aren't coming up with many questions, you may not know enough to really get started. You may want to go back to the previous step and learn just a bit more so that you can do some meaningful experiments on your own.)*

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Checklist

BEFORE YOU MOVE ON CHECKLIST:

- ❏ Did you have fun? It seems kind of silly, but this step should be fun. That is why it is called "play around" instead of "conduct your own experiments."

- ❏ Do you have at least 5 questions that developed from playing around? *(The number isn't so important, but it is important that you have at least some curiosity about the subject you are learning about. Otherwise it will be very hard to absorb the information.)*

- ❏ Stop and consider what you were able to teach yourself just by playing around. Sometimes, you can learn quite a bit just by experimenting on your own.

Step 9: Learn Enough To Do Something Useful

Now it is time to put the pedal to the metal, as they say. At this step, you'll be going through your resources with the aim of answering the questions you came up with in the last step, and generally trying to gain as much knowledge about the module in your learning plan as you can.

Most people start with this step and don't do any of the others. However, you'll find that you will not only be more motivated to learn about your subject after you've had a chance to play around and develop your own questions, but you'll also retain more of the information that you learn.

Curiosity drives learning. It is difficult to learn without curiosity. When we are children, we tend to learn rapidly because we are constantly curious about the world around us, but when we become adults, much of that curiosity disappears and subjects become boring.

The goal of this step

By the end of this step, you should feel like you have thoroughly learned the content of the learning module you set out to learn. You may not know every single thing about the subject, and you may even have some of your questions that are still unanswered, but you should feel like you understand that subject well enough to be able to do something useful with that knowledge.

Putting it into action

This step is going to mainly involve reading material from your resources, watching videos, or consuming your resources in some way to gain the knowledge that answers the questions you developed in the last step.

You may find it helpful to go back and play around some more as part of this step, and that is perfectly acceptable—in fact, you should try to go back and experiment more on your own as you feel the need to.

Remember, you still don't have to consume every single resource you have gathered together for learning your subject. There is no gold star given out for reading a book cover-to-cover. Your goal is to obtain the practical knowledge you need to be able to do something useful.

Don't forget to tie everything you are doing to the purpose of accomplishing the criteria you set forth to determine your success in step 3.

FILL THIS OUT

"Always desire to learn something useful."

Sophocles

What are the most important questions you hope to find answers to during this step?

_____

_____

_____

_____

Which questions are still unanswered after completing this step?

_____

_____

_____

_____

What do you think would be an effective way to teach what you have learned in this step to someone else?

_____

_____

_____

_____

What is the most important thing you have learned in this step?

_____

_____

_____

_____

CHECKLIST

BEFORE YOU MOVE ON CHECKLIST:

- ❑ Do you feel like you have gotten answers to a majority of the questions you had in the last step? *(If not, you may want to look for more resources. You may not have answers to all your questions, but if you can't answer most of them, you may not be learning what you set out to learn.)*

- ❑ Do you feel like you could regurgitate or teach what you have learned in this step?

- ❑ Consider how much the questions from the previous step helped guide you on this step. Use that information to help yourself ask better questions the next time around.

Step 10: Teach

There is only one requirement to teach something to someone else: you must be one step ahead of them.

Most people don't realize that they have the ability or knowledge required to teach someone else. This is unfortunate because one of the best ways to learn is to teach.

I discovered this quite by accident, by getting myself in over my head in many situations throughout my career. I often offered to teach some subject or to serve as a mentor for subjects that I didn't really know much about. This forced me to learn, and to learn quickly. The process of breaking things down into digestible chunks that someone else could understand caused that information to become deeply ingrained in my own mind.

Teaching is scary, I'll admit it. However, it is the single most effective way to learn something and to learn it deeply.

When you go through the process of teaching something to someone else, it forces you to find the gaps in your own knowledge and to fill them in. The process of organizing material in a way that you can teach it to someone else requires you to deeply examine the content and to look at it from a different perspective.

I know many of you will be inclined to skip this step—but don't!

The goal of this step

Ultimately, what we want to do for this step is to go through the mental process involved in preparing material to be taught to someone else, and to somehow deliver that material.

The only way to do this step is to actually do it. So, by the end of this step, you should have condensed what you learned into some form of learning material that another person could use to learn about the subject you have been studying.

Putting it into action

How you do this step is mostly up to you. Teaching can take many different forms, so don't feel constrained to one particular medium.

You can teach by creating a presentation and then delivering that presentation to your coworkers or even your pet dog.

You can teach by writing an essay or a blog post.

You can teach by creating a YouTube video or screencast about your subject matter.

You can even teach just by having a simple conversation with your friend or your spouse, telling them what you have learned.

The important thing is that you somehow re-convey the information you learned in some form or another.

"Tell me and I forget. Teach me and I remember. Involve me and I learn."

Benjamin Franklin

What methods of teaching do you find appeal to you the most? Do you like lectures, reading from books, watching videos, having a personal conversation, or something else?

_____

_____

What do you think would be the best way to present the material you have learned in this module of your learning plan?

_____

_____

Based on the answers from these two questions, determine how you will teach the subject matter you have been learning about and write it down here.

_____

_____

After you have taught your subject, list anything you learned in the process that you had not realized or did not know before.

_____

_____

_____

CHECKLIST

BEFORE YOU MOVE ON CHECKLIST:

- ❑ Did you actually take the time to really teach the subject you learned about, or did you just do it in the hypothetical, saying "if I were to teach this, here is how I would do it?"

- ❑ Take a moment to reflect on the material you taught, and think about some ways that you could improve your delivery and organization of the information.

- ❑ If you had the opportunity to directly teach to someone else, solicit some feedback. Ask them how you did and how you could have improved. *(Feedback is another way to learn quickly. Others can often see what we are doing wrong better than we can.)*

- ❑ Consider publishing or giving away the learning materials you created from this step. What you created might be useful to someone else. *(A blog is a great way to share what you are learning and help others.)*

Parting Advice

Congratulations on making it through this course and the workbook! I wanted to leave you with some parting advice that will help you to make the most of these materials.

First, even though I've presented things as a series of 10 steps here, this is not the only way to learn, and it may not be the most effective. What is important is not the order and the specifics of each step, but the process of figuring out what you want to learn, setting a path for yourself to do it, and doing so by a combination of resources and experimentation.

There is no magic in this specific formula. However, there is magic in unlocking your potential and realizing that you can be responsible for your own education, that you can teach yourself, rather than relying on others to spoon-feed you information.

Secondly, don't ever stop learning. The steps I show you here will help you learn a topic quickly, but they will never give you the in-depth knowledge and skills that can only be obtained through hard work and persistence. You will be most successful by using these steps to quickly gain the knowledge of a subject area, but knowledge is no substitute for skill—and skill is only obtained through dedicated practice and real world application.

So, use what you have learned and continue to learn. Your limits are only the ones you willingly accept for yourself.

Hopefully you've found this course and workbook useful. I've actually learned quite a bit while creating both these materials.

If you have any feedback, or can think of some ways these materials could be improved, please let me know. I would be glad to hear any suggestions. You can email me at john.sonmez@gmail.com or visit my blog at http://simpleprogrammer.com.

John Sonmez

SP

Simple Programmer
Making the complex simple

The following section contains the filled out worksheets that I used for learning how to create pixel art. You can use these worksheets as an example, but don't feel like you have to fill them out exactly the same way—no one is grading you.

How you fill out these worksheets is going to depend to a large degree on your topic and your particular style of learning.

In this example, I only filled out the worksheets for steps 7 through 10 for the first module. You may want to fill out the worksheets for the first few modules to get used to the process, but it is up to you.

FILL THIS OUT

"In order to properly understand the big picture, everyone should fear becoming mentally clouded and obsessed with one small section of truth."

Xun Zi

What is the high-level topic that you want to learn about?

How to create pixel art.

Briefly provide a summary of what your topic is about (the big picture.)

Pixel art is about creating digital art at the pixel level. There are many different kinds of pixel art, but it involves manually creating the art by manipulating each pixel. The size of the pixel art greatly affects how it is made.

Break your high-level topic up into smaller subtopics or focus areas.

Hint: Some topics will have many subtopics, but others will already be specialized areas of focus. The idea here is just to try and get a picture of how big the thing you want to learn is, so that you can determine the proper scope in the next step.

- 16x16 (small)
- Large mural
- Medium size
- 3D (isometric)
- 2D (non-isometric)

Fill this out

"Because of their size, parents may be difficult to discipline properly."

P. J. O'Rourke

TIME FRAME

In what time frame do you expect to learn the topic you want to learn? (In weeks.) 2

How many hours per week are you planning to devote to learning your topic? 10

Multiply weeks 2 by hours 10 = 20 approximate hours to learn your topic.

This is pretty basic information, but use this information to help you determine a realistic scope.

SCOPED TOPIC

What subtopic do you want to learn about?

2D, non-isometric pixel art (small and medium sizes)

What do you plan on doing with the knowledge you will get from learning about this topic?

Eventually create my own art for games I create. Create icons for applications and websites.

Use the time frame, the subtopic, and what you will do with the knowledge to determine what will be your appropriately-scoped topic and write it here:

Learn how to create 2D video game pixel art

"The great aim of education is not knowledge but action."

Herbert Spencer

What specific actions does the knowledge you are trying to acquire allow you to do? *(List as many of them as you can think of here.)*

Create pixel art for retro-style video games

Create Icons

Design custom controls and widgets

Work with fine details of modifying an image or other digital asset.

Of the actions you listed above, which one or ones would be most valuable for you to be able to do?

Create pixel art for retro-style video games.

Using this information, come up with a clearly-defined success criteria that you will use to determine when you have reached your goal. *(Remember, good success criteria will be measurable and unambiguous.)*

I will have learned to create 2D video game pixel art when I can replace the pixel art in the space shooter game I created with new pixel art.

"There's nothing more dangerous than a resourceful idiot."

Scott Adams

Start with books, since books usually contain the most well-researched and organized information. Look for the best 5 or so books you can find on your topic and list them here. *(Utilize customer reviews to determine what material is of the highest quality. Don't waste your time reading something that many other people think is not very valuable.)*

1. It turned out there were actually no good books I could find about pixel art!
2. _____
3. _____
4. _____
5. _____

Now make a list of all the other resources you can think of. *(For blog posts and internet articles, you are probably better off just creating a folder in your bookmarks list for whatever browser you use and saving them as bookmarks there.)*

Online tutorials (saved those in a bookmarks folder)

A friend of mine who create pixel art and other art

Examples of pixel art from games I like

Fill this out

Pick what looks like your 5 best resources and list the chapters from the table of contents or the sections or headers used to break up the material here:

Resource 1	Resource 2	Resource 3	Resource 4	Resource 5
Tools	What it is	16x16 pixel art	Approach	Tools
Lines	Tips	Outlines	Tools	Demystifying
Conceptualizing	Programs	Base colors	Lineart	Secrets
The outline	Anti-aliasing	Shadows	Colors	Sprites
Color	Dithering	Outline color	Shading	16x16 pixel art
Shading	Sel-out		Outlines	Larger sprites
Outlining	Palette		Anti-aliasing	Animations

Take a look at what chapters or sections are repeated the most and write them down here:

Tools

Sprite sizes

Colors

Outlining

Shading

Anti-aliasing

Add any additional modules or sections that you think need to be added to your learning plan, but might not exist as distinct chapters or sections in your resources.

Animations

Dithering

From both of these lists, come up with the modules for your learning plan. Put them in the order that makes the most sense to you.

Tools

Small sprites

Big sprites

Shadow and light

Anti-aliasing

Colors and palettes

Dithering

Animation

"I've learned how to use my spam filter pretty effectively."

Weird Al Yankovic

What criteria do you think is the most important for judging the resources you will use for learning your topic? List the criteria you feel is most valuable to you here:

Contains most of the modules I need to learn about or specialized very well in a single one.

Clearly demonstrates how and why something is done.

Examples and results shown in resource are the style I like.

Make your master list of resources here. *(Try to keep it to a reasonable size, so that you don't feel overwhelmed. Remember that you don't have to go through each resource from beginning to end; you'll be picking what you need from each resource.)*

1. Make Games: Pixel art tutorial
2. 30 Excellent Pixel Art Tutorials For Pixel Lovers
3. The Big List of Pixel Art Tutorials
4. So You Want To Be A Pixel Artist Tutorial
5. Friend who does pixel art

Fill this out

"Start by doing what's necessary; then do what's possible; and suddenly you are doing the impossible."

Francis of Assisi

What is the general idea of this module in your learning plan?

To figure out what tools are available; which ones are the best ones to use; and how to use at least one of these tools proficiently.

What actions can you take to "play around" with what you are going to be learning for this module?

Hint: This can be tricky to decide. You may have to get creative. For something like a programming language or technology, the answer is usually straight-forward. For something more abstract, your action might be something abstract as well, like a thought experiment or writing down a list of questions you have.

I can start experimenting with the different tools and seeing which ones I like and seem intuitive. I can play with the different features of the tools and try to figure out how they work.

Fill this out

"You have to learn the rules of the game. And then you have to play better than anyone else."

Albert Einstein

What specific things can you do to "play around" with the subject you are learning about? *(List a few different choices if you can.)*

Pick the top tools and install each one of them

Try to create a simple drawing in each tool

Go through the menu of a specific tool and try to use each feature

Pick one of the things you can do and do it. Then list any questions you have as you are "playing around" here. *(If you aren't coming up with many questions, you may not know enough to really get started. You may want to go back to the previous step and learn just a bit more so that you can do some meaningful experiments on your own.)*

How does file image format affect how the image is created?

What type of format do I want to use for pixel art?

What does the palette tool do?

What does it mean to quantize or to create a ramp?

How are the layers used in the tool?

How are layers and frames related?

How do I navigate around the picture without selecting the hand tool manually?

What shortcuts exist in the tool that I need to know?

"Always desire to learn something useful."

Sophocles

What are the most important questions you hope to find answers to during this step?

What shortcuts do I need to know?

What format do I want to use?

How do I best navigate around the picture?

How do frames and layers work and relate?

Which questions are still unanswered after completing this step?

What do quantize and ramp do in the tool?

What do you think would be an effective way to teach what you have learned in this step to someone else?

Create a screencast that shows how to use the basic feature of the tool.

What is the most important thing you have learned in this step?

How to navigate around the picture quickly by using shortcuts.

"Tell me and I forget. Teach me and I remember. Involve me and I learn."

Benjamin Franklin

What methods of teaching do you find appeal to you the most? Do you like lectures, reading from books, watching videos, having a personal conversation, or something else?

I like watching someone doing something and then doing it myself, or having a conversation with someone who knows a topic really well.

What do you think would be the best way to present the material you have learned in this module of your learning plan?

Create a YouTube video screencast showing the basics of how to use the tool.

Based on the answers from these two questions, determine how you will teach the subject matter you have been learning about and write it down here.

I will create a short YouTube video that covers how to get the tool, how to create a basic image with it and some of the basic features.

After you have taught your subject, list anything you learned in the process that you had not realized or did not know before.

I thought I knew how frames and layers worked, but I found that I couldn't really explain them. I had to go back and learn exactly how they worked in order to complete the video.